What is claimed is:

1. A method for fabricating a semiconductor device, comprising the steps of:

a) forming a stack layer of a gate layer, a poly-silicon layer, a tungsten layer, and a hard mask sequentially deposited on a semiconductor substrate;

b) selectively oxidizing only the poly-silicon layer of the stack layer;

c) heat treating the stack layer to release stress exerted during the selective oxidizing; and

d) forming a gate sealing nitride layer on the heat treated stack layer.

2. The method as recited in claim 1, wherein the heat treating and the gate sealing nitride layer forming are carried out using a low pressure chemical vapor deposition (LPCVD) furnace under an in-situ method.

3. The method as recited in claim 2, wherein the in-situ method includes the steps of:

a1) loading the semiconductor substrate at which the selective oxidizing is carried out in the LPCVD furnace;

b1) wherein the heat treating increases a temperature of the LPCVD furnace from room temperature to a target temperature and keeps the target temperature in a vacuum ambient;

c1) depositing the gate sealing nitride layer after decreasing the temperature of the LPCVD furnace from the target temperature for the heat treating to a target temperature for depositing the gate sealing nitride layer; and

d1) unloading the semiconductor substrate after

decreasing the temperature of the LPCVD furnace to room temperature.

4. The method as recited in claim 3, wherein the target temperature for the heat treating ranges from about 750° C to about 1000° C and a pressure of the vacuum ambient ranges from about 10^{-3} torr to about 10^{-2} torr.

5. The method as recited in claim 3, wherein a rising rate of the temperature for the heat treating ranges from about 3° C/min to about 25° C/min.

6. The method as recited in claim 3, wherein a falling rate of the temperature for depositing the gate sealing nitride layer ranges from about 1° C/min to about 20° C/min.

7. The method as recited in claim 3, wherein the heat treating is carried out for about 10 minutes to about 240 minutes.

8. The method as recited in claim 1, wherein the heat treating and the gate sealing nitride layer forming are carried out in two different LPCVD furnaces under an ex-situ method.

9. The method as recited in claim 8, wherein the ex-situ method includes the steps of:

a2) loading the semiconductor substrate at which the selective oxidizing is carried out in a first low pressure chemical vapor deposition (LPCVD) furnace;

b2) performing the heat treating by increasing a temperature of the first LPCVD furnace from room

temperature to a target and keeping the target temperature in a vacuum ambient;

c2) unloading the semiconductor substrate after decreasing the temperature of the first LPCVD furnace to room temperature; and

d2) depositing the gate sealing nitride layer after moving the unloaded semiconductor substrate in the first LPCVD furnace to the second LPCVD furnace.

10 The method as recited in claim 9, wherein the target temperature for the heat treating ranges from about 750° C to about 1000° C and a pressure of the vacuum ambient ranges from about 10^{-3} torr to about 10^{-2} torr.

11. The method as recited in claim 9, wherein a rising rate of the temperature for the heat treating ranges from about 3° C/min to about 25° C/min.

12. The method as recited in claim 9, wherein a falling rate of the temperature for depositing the gate sealing nitride layer ranges from about 1° C/min to about 20° C/min.

13. The method as recited in claim 9, wherein the heat treating is carried out for about 10 minutes to about 240 minutes.

14. A method for fabricating a semiconductor device, comprising the steps of:

a3) forming a stack layer of a gate oxide layer, a poly-silicon layer, a tungsten layer, and a hard mask sequentially deposited on a semiconductor substrate;

b3) selectively oxidizing only the poly-silicon layer

of the stack layer;

c3) depositing a gate sealing nitride layer on the selectively oxidized stack layer; and

d3) heat treating the stack layer to release stress exerted during the selective oxidizing and gate sealing nitride layer depositing.

15. The method as recited in claim 14, wherein the selective oxidizing and the heat treating are carried out in two different LPCVD furnaces under an ex-situ method.

16. The method as recited in claim 15, wherein the ex-situ method includes the steps of:

a4) depositing the gate sealing nitride layer on the semiconductor substrate in a first low pressure chemical vapor deposition (LPCVD) furnace;

b4) loading the semiconductor substrate on which the gate sealing nitride layer is deposited in a second LPCVD furnace;

c4) performing the heat treating by increasing a temperature of the second LPCVD furnace from room temperature to a target temperature and maintaining the target temperature in a vacuum or inert gas ambient; and

c5) unloading the semiconductor substrate after decreasing the temperature of the second LPCVD furnace from the target temperature to room temperature.

17. The method as recited in claim 15, wherein the ex-situ method includes the steps of:

a6) depositing the gate sealing nitride layer in the LPCVD furnace;

b6) loading the semiconductor substrate on which the gate sealing nitride layer is deposited in an annealing

furnace used for the heat treating;

c6) carrying out the heat treating by increasing a temperature of the annealing furnace from room temperature to a target temperature and maintaining the target temperature in a vacuum or inert gas ambient; and

d6) unloading the semiconductor substrate after decreasing the temperature of the annealing furnace.

18. The method as recited in claim 16, wherein the temperature for the heat treating ranges from about 750° C to about 1000° C and a pressure of the vacuum ambient ranges from about 10^{-3} torr to about 10^{-2} torr.

19. The method as recited in claim 16, wherein a rising rate of the temperature for the heat treating ranges from about 3° C/min to about 25° C/min.

20. The method as recited in claim 16, wherein a falling rate of the temperature for the heat treating ranges from about 1° C/min to about 20° C/min

21. The method as recited in claim 17, wherein the temperature for the heat treating ranges from about 750° C to about 1000° C and a pressure of the vacuum ambient ranges from about 10^{-3} torr to about 10^{-2} torr.

22. The method as recited in claim 17, wherein a rising rate of the temperature for the heat treating ranges from about 3° C/min to about 25° C/min.

23. The method as recited in claim 16, wherein a falling rate of the temperature for the heat treating ranges from about 1° C/min to about 20° C/min.